JS 9/13/21
RJA 2/17/22

INITIAL REVIEW ENGINEERING REPORT [redacted]
P-18-0284
Focus Ready Draft 09/11/2018

Engineer: Al-Haddad

PV(kg/yr): [redacted]

Revision Notes/Assessment Overview:

Submitter: [redacted]

Use: [redacted]

Other Uses: Analogues [redacted]; Analogue [redacted].

MSDS: Y

Label: N

Gen Eqpt: Engineering Controls: Sources of fine spray, mist or vapor should be controlled with local exhaust ventilation. // Eye/Face Protection: Always use safety glasses. Where contact with the eyes is likely, use chemical goggles. Use a face shield as needed. // Skin Protection: Wear impervious Gloves and chemical protective clothing to prevent contact with skin. //

Respirator: Respiratory Protection: Upon heating fumes may be released.

Health Effects: Carcinogenicity Information: Constituents are not classified as a carcinogen by IARC, OSHA, NTP or EPA. // Skin Exposure: May cause irritation with prolonged or repeated skin exposure. // Eye Exposure: Contact with eyes may cause irritation. // Inhalation: May cause irritation to the respiratory tract. // Swallowing: May be harmful if swallowed.

TLV/PEL:

LVE PPE:

CRSS: 09/06/2018

Chemical Name: [redacted]

S-H2O: 0

VP: 0.000001

MW: [redacted]

Physical State and Misc CRSS Info:

NEAT: [redacted] **Mfg:** Solution: [redacted]% PMN substance with [redacted]

Proc/FormL: [redacted] blend: [redacted]

End Use: [redacted] blend: [redacted]. The submitter provides the following composition: [redacted]. The MF, MW and estimated values above are for the [redacted]. Submitted Data: Light yellow [redacted] WS < 10 g/L (MSDS); density = 0.97 g/cm3. Estimated Data for [redacted] [EPI with MP = 20°C, MF = [redacted] MW = [redacted], [redacted] BP = 694.57°C; VP = 1.26E-12 torr; WS = 3.30E-21 g/L; log P = 22.41. Estimated Date for [redacted] [EPI with MP = 20°C, MF = [redacted], MW = 566.81, [redacted]: BP = 539.62°C; VP = 1.13E-11 torr; WS = 3.07E-13 g/L; log P = 14.77. The PMN is expected to hydrolyze with a half-life of days to give [redacted] and [redacted]

Consumer Use: N

SAT (concerns):

Related Cases and Misc SAT info:

Related Cases:

Migration to ground water: Other (please specify)

PBT Rating: 0P 0B 0T

Health:

Eco: 1, No releases to water

Occupational Exposure Rating: [redacted]

Notes & Key Assumptions: Occupational exposure and environmental releases were estimated using the 9/30/2013 version of ChemSTEER tool. Input to ChemSTEER tool includes information from: the PMN submission, physical / chemical properties, relevant past cases. SAT report not available; full assessment was conducted. [redacted] The following same-submiter, same-use past cases were referenced for consistency: [redacted]. // Manufacturing: RAD assessed releases from equipment cleaning and [redacted] (Consistent with all past cases). RAD dermal exposures from [redacted] (consistent with all past cases). // Processing: RAD assessed releases from container cleaning, equipment cleaning, and [redacted] (consistent with all past cases). RAD assessed dermal exposure during [redacted] and dermal and inhalation exposure during [redacted] (Consistent with all past cases). // Use: RAD assessed releases from [redacted], container cleaning, and equipment cleaning (consistent with all past cases). RAD assessed dermal and inhalation exposures from [redacted] (consistent with all past cases).

Pollution prevention Considerations: None.

P2REC: None.

Exposure Based Review: [redacted]

1) # of workers exposed: [redacted] **>1000** [redacted]

2) >100 workers with >10 mg/day inhalation exposure: [redacted]

3)(a) >100 workers with/1-10 mg/day inh. exp. & >100 days/yr: [redacted]

3)(b) Routing Dermal Cont: >250 workers & >100 days/yr: [redacted]

Scenario Details:

Name: [redacted]
Number of Sites: [redacted]
Locations:
[redacted]

Basis: The submission specifies [redacted] site, [redacted] batches/year, [redacted] hours/batch, [redacted] kg PMN/batch max, and [redacted] PMN in the product. RAD specifies [redacted] site, [redacted] bt/yr, and [redacted] PMN in product. CS calculates [redacted] kg PMN/batch.

Process Description: [redacted]

ENVIRONMENTAL RELEASES ESTIMATE SUMMARY

Release Notes: IRER Note: The daily releases listed for any source below may coincide with daily releases from the other sources to the same medium.

Media: [redacted]

Descriptor A: Output 2
Quantity A: [redacted] kg/site-day over
Frequency A: [redacted] day/yr from [redacted] sites or [redacted] kg/yr

To: [redacted] (per submission)
From: Sampling [redacted] Product
Basis: User-Defined Loss Rate Model. The submission estimates [redacted] kg PMN/batch based on batch size of [redacted] kg PMN (LF = 0.25/231 = 0.0011) is released from [redacted] to [redacted]

Media: Incineration

Descriptor A: Conservative
Quantity A: [redacted] kg/site-day over
Frequency A: [redacted] day/yr from [redacted] sites or [redacted] kg/yr

To: Incineration (per submission)
From: Equipment Cleaning Losses of [redacted] from a Single, Large Vessel
Basis: EPA/OPPT Single Vessel Residual Model, CEB standard 1% residual. The submission does not estimate this release, but states that [redacted] RAD assesses this release 1 day/year using the standard model as conservative.

Release Total: [redacted] kg/yr - all sites

OCCUPATIONAL EXPOSURES ESTIMATE SUMMARY

Media: Dermal

Exposure To: [redacted]

Descriptor A: High End

Quantity A: [redacted] mg/day over

Frequency A: [redacted] days/yr

Basis: Loading [redacted] Product into Small Containers EPA/OPPT 2-Hand Dermal Contact with [redacted] Model. Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years.

Number of workers (all sites) with Dermal Exposure: [redacted]

INHALATION MONITORING DATA REVIEW

1)Uncertainty (estimate based on model,regulatory limit, or data not specific to industry.): Yes

2)(a)Exposure level > 1mg/day?: No

2)(b)Hazard Rating for health of 2 or greater?: No

Inhalation monitoring data desired?: No

Name: [redacted]

Number of Sites: [redacted]

Locations:
[redacted]

Basis: The submission specifies [redacted] site, [redacted] batches/year, [redacted] hours/batch, [redacted] PMN/batch. PMN is [redacted] in raw material and [redacted] on coated particles. RAD specifies [redacted] site, [redacted] PMN in raw material, and [redacted] bt/yr. CS calculates [redacted] kg PMN/batch.

Process Description: [redacted]

ENVIRONMENTAL RELEASES ESTIMATE SUMMARY

Release Notes: IRER Note: The daily releases listed for any source below may coincide with daily releases from the other sources to the same medium.

Media: Landfill

Descriptor A: High End

Quantity A: [redacted] kg/site-day over

Frequency A: [redacted] day/yr from [redacted] sites or [redacted] kg/yr

To: [redacted] (per submission)

From: Cleaning [redacted] Residuals from Small Containers Used to Transport the Raw Material

Basis: EPA/OPPT Small Container Residual Model, CEB standard 0.6% residual. The submiter states, [redacted] RAD assesses this release using the standard model as conservative.

Media: Incineration

Descriptor A: Output 2
Quantity A: [redacted] kg/site-day over
Frequency A: [redacted] day/yr from [redacted] sites or [redacted] kg/yr

To: Incineration (per submission)
From: Equipment Cleaning Losses of Solids from Process Vessels
Basis: EPA/OPPT Solid Residuals in Transport Containers Model, CEB standard 1% residual. [redacted] RAD assesses cleaning 1 day/year using the standard model as conservative.

Media: Water or Air or Landfill

Descriptor A: Conservative
Quantity A: [redacted] kg/site-day over
Frequency A: [redacted] day/yr from [redacted] sites or [redacted] kg/yr

To: water, air, or [redacted] and Incineration or [redacted] (per model)
From: [redacted] Solid Product into Transport Containers
Basis: EPA/OPPT Solids Transfer Dust Loss Model. [redacted] Although dust releases are not expected from coated substrate particles, RAD assess potential dust releases to [redacted] as a conservative

Media: Incineration or Landfill

Descriptor A: Conservative
Quantity A: [redacted] kg/site-day over
Frequency A: [redacted] day/yr from [redacted] sites or [redacted] kg/yr

To: water, air, or [redacted] (1%) and Incineration or [redacted] (99%) (per model)
From: [redacted] Solid Product into Transport Containers
Basis: EPA/OPPT Solids Transfer Dust Loss Model. [redacted] Although dust releases are not expected from coated substrate particles, RAD assess potential dust releases to [redacted] as a conservative

Release Total: [redacted] kg/yr - all sites

OCCUPATIONAL EXPOSURES ESTIMATE SUMMARY

Media: Dermal

Exposure To: [redacted]

Descriptor A: High End

Quantity A: [redacted] mg/day over

Frequency A: [redacted] days/yr

Basis: [redacted] Raw Material from Small Containers EPA/OPPT 2-Hand Dermal Contact with [redacted] Model. Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years.

Number of workers (all sites) with Dermal Exposure: [redacted]

INHALATION MONITORING DATA REVIEW

1)Uncertainty (estimate based on model,regulatory limit, or data not specific to industry.): Yes

2)(a)Exposure level > 1mg/day?: No

2)(b)Hazard Rating for health of 2 or greater?: No

Inhalation monitoring data desired?: No

Media: Dermal

Exposure To: Solid

Descriptor A: High End

Quantity A: [redacted] mg/day over

Frequency A: [redacted] days/yr

Basis: [redacted] Solid Product into Transport Containers EPA/OPPT Direct 2-Hand Dermal Contact with Solids Model. Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years.

Number of workers (all sites) with Dermal Exposure: [redacted]

INHALATION MONITORING DATA REVIEW

1)Uncertainty (estimate based on model,regulatory limit, or data not specific to industry.): Yes

2)(a)Exposure level > 1mg/day?: No

2)(b)Hazard Rating for health of 2 or greater?: No

Inhalation monitoring data desired?: No

Media: Inhalation

Exposure To: Particulate

Descriptor A: Total

Quantity A: [redacted] mg/day over

Frequency A: [redacted] days/yr

Descriptor B: Respirable

Quantity B: [redacted] mg/day over

Frequency B: [redacted] days/yr

Basis: [redacted] Solid Product into Transport Containers User-defined Inhalation Model. Per November 2016 RAD guidance, the following default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years. Because of a ChemSTEER bug, these numbers were reversed to allow for calculation (BW = 78 kg and ATc = 80 years). RAD estimates inhalation exposures using the OSHA PEL for respirable ([redacted] mg/m3) and total ([redacted] mg/m3) particulate. Accounting for the concentration of the PMN [redacted]), Cm = [redacted] mg/m3 (respirable) and [redacted] mg/m3 (total), h = [redacted] hr/day.

Number of workers (all sites) with Inhalation Exposure: [redacted]

INHALATION MONITORING DATA REVIEW

1)Uncertainty (estimate based on model,regulatory limit, or data not specific to industry.): Yes

2)(a)Exposure level > 1mg/day?: No

2)(b)Hazard Rating for health of 2 or greater?: No

Inhalation monitoring data desired?: No

Name: [redacted]

Number of Sites: [redacted]

Locations:
[redacted]

Basis: The submission estimates [redacted] site (site limited PMN), and an PMN concentration of [redacted]% in the raw material. Since this is a site limited PMN, RAD assumes the same batches per year as the PROC operation, [redacted] bt/yr. RAD also assumes [redacted] site, and LVE concentration of [redacted]%. ChemSTEER calculates an LVE use rate of [redacted] kg/st bt (at [redacted] hrs/bt).

Process Description: [redacted]

ENVIRONMENTAL RELEASES ESTIMATE SUMMARY

Release Notes: IRER Note: The daily releases listed for any source below may coincide with daily releases from the other sources to the same medium.

Media: Water or Air or [redacted]

Descriptor A: Conservative

Quantity A: [redacted] kg/site-day over

Frequency A: [redacted] day/yr from [redacted] sites or [redacted] kg/yr

To: water, air, or [redacted] (1%) and Incineration or [redacted] (99%) (per model)

From: Unloading Solid Raw Material from Transport Containers

Basis: EPA/OPPT Solids Transfer Dust Loss Model. [redacted] RAD assumes 99% solid removal efficiency

default. The submission states, [redacted], RAD assess potential dust releases to [redacted] as a conservative.

Media: Incineration or [redacted]
Descriptor A: Conservative
Quantity A: [redacted] kg/site-day over
Frequency A: [redacted] day/yr from [redacted] sites or [redacted] kg/yr
To: water, air, or [redacted] and Incineration or [redacted] (per model)
From: Unloading Solid Raw Material from Transport Containers
Basis: EPA/OPPT Solids Transfer Dust Loss Model. [redacted] The submission states [redacted] Although dust releases are not expected from coated substrate particles, RAD assess potential dust releases to [redacted] as a conservative.

Media: [redacted]
Descriptor A: Output 2
Quantity A: [redacted] kg/site-day over
Frequency A: [redacted] day/yr from [redacted] sites or [redacted] kg/yr
To: [redacted] (per submission)
From: Cleaning Solid/ Powder Residuals from Containers Used to Transport the Raw Material
Basis: EPA/OPPT Solid Residuals in Transport Containers Model, CEB standard 1% residual. The submission estimates [redacted] kg/batch ([redacted]) released from supersack disposal to [redacted] The submitter's release estimate is consistent with the EPA/OPPT Solid Residuals in Transport Containers Model.

Media: [redacted]
Descriptor A: Output 2
Quantity A: [redacted] kg/site-day over
Frequency A: [redacted] day/yr from [redacted] sites or [redacted] kg/yr
To: [redacted] (per submission)
From: Extruder Cleaning
Basis: User-Defined Loss Rate Model. The submission estiamtes [redacted] kg/batch (LF = [redacted] released from extruder cleaning. The extruders are cleaned by flushing with a purge compound (pure THV or EVA polymer), which is disposed of as solid waste.

Release Total: [redacted] kg/yr - all sites

OCCUPATIONAL EXPOSURES ESTIMATE SUMMARY

Media: Dermal

Exposure To: Solid

Descriptor A: High End

Quantity A: [redacted] mg/day over

Frequency A: [redacted] days/yr

Basis: [redacted] Solid Raw Material from Transport Containers EPA/OPPT Direct 2-Hand Dermal Contact with Solids Model. Per November 2016 RAD guidance, default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years.

Number of workers (all sites) with Dermal Exposure: [redacted]

INHALATION MONITORING DATA REVIEW

1)Uncertainty (estimate based on model,regulatory limit, or data not specific to industry.): Yes

2)(a)Exposure level > 1mg/day?: No

2)(b)Hazard Rating for health of 2 or greater?: No

Inhalation monitoring data desired?: No

Media: Inhalation

Exposure To: Particulate

Descriptor A: Total

Quantity A: [redacted] mg/day over

Frequency A: [redacted] days/yr

Descriptor B: Respirable

Quantity B: [redacted] mg/day over

Frequency B: [redacted] days/yr

Basis: [redacted] Solid Raw Material from Transport Containers User-defined Inhalation Model. Per November 2016 RAD guidance, the following default parameters for this model were updated: body weight (BW) was updated from 70 to 80 kg and Averaging Time over a Lifetime (ATc) was updated from 70 to 78 years. Because of a ChemSTEER bug, these numbers were reversed to allow for calculation (BW = 78 kg and ATc = 80 years). RAD estimates inhalation exposures using the OSHA PEL for respirable [redacted] mg/m3) and total ([redacted] mg/m3) particulate. Accounting for the concentration of the PMN [redacted] %), Cm = [redacted] mg/m3 (respirable) and [redacted] mg/m3 (total), h = [redacted] hr/day.

Number of workers (all sites) with Inhalation Exposure: [redacted]

INHALATION MONITORING DATA REVIEW

1)Uncertainty (estimate based on model,regulatory limit, or data not specific to industry.): Yes

2)(a)Exposure level > 1mg/day?: No

2)(b)Hazard Rating for health of 2 or greater?: No
Inhalation monitoring data desired?: No